

Appl. No. 10/040,092
Amdt. dated 02 Mar 04
Reply to Office action of 02 Dec 03

In the Claims:

This listing of claims replaces all prior versions and listings of the claims in this application:

1. (previously amended) An apparatus for casting metal strip, comprising a casting roll, a metal delivery system to deliver molten metal onto the casting surface of the casting roll and a roll brushing apparatus to clean the casting roll surface, the brushing apparatus comprising:

at least one brush mounting frame;

a rotary main brush mounted on one said mounting frame to extend across the casting surface of the casting roll and capable of tangentially engaging the peripheral longitudinal casting roll surface of the casting roll;

an elongate rotary sweeper brush mounted on one said mounting frame to extend across the casting surface of the casting roll and capable of engaging the casting roll surface of the casting roll in advance of the position of the main brush relative to the casting surface of the casting roll;

a sweeper brush drive operable to rotate the sweeper brush in a direction opposite to the surface movement of the casting roll;

a sweeper brush actuator on one said mounting frame to move the sweeper brush independently of the main brush into engagement with the casting roll surface of the casting roll near the beginning and end of each casting run and disengage from the casting roll during normal casting operation; and

a main brush actuator on one said mounting frame to move the main brush into engagement with the casting roll surface at least during normal casting operation.

2. (original) An apparatus as claimed in claim 1, wherein the sweeper brush is rotatably mounted on a brush mounting structure connected to the sweeper brush actuator.

3. (original) An apparatus as claimed in claim 2, wherein the sweeper brush actuator and the main brush actuator comprise fluid actuable cylinder devices.

4. (original) An apparatus as claimed in claim 2, further comprising an elongate scraper mounted on the brush mounting structure to move with the sweeper brush and engaging the sweeper brush so as to scrape swept material from the sweeper brush.

5. (original) An apparatus as claimed in claim 4, wherein the sweeper brush comprises a central brush body and a plurality of bristles projecting radially outwardly from the central body and forming collectively a substantially cylindrical shape and the scraper

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comprises an elongate scraper blade projecting into the bristles of the brush.

6. (original) An apparatus as claimed in claim 5, wherein the bristles are formed of steel wire.

7. (original) An apparatus as claimed in claim 6, wherein the scraper blade is made of hardened steel.

8. (original) An apparatus as claimed in claim 1, wherein the main brush is an elongate rotary brush and the main brush mounting frame carries main brush drive operable to rotate the main brush.

9. (previously amended) An apparatus as claimed in claim 1, further comprising a main brush drive operable to rotate the sweeper brush in a direction opposite to the movement of the casting surface of the casting roll.

10. (previously amended) An apparatus as claimed in claim 1, wherein the sweeper brush is rotatably mounted on a sweeper brush mounting frame connected to the brush actuator and the sweeper brush drive is mounted on the brush mounting frame to move with the sweeper brush.

11. (original) An apparatus as claimed in claim 1, wherein the main brush mounting frame is moveable toward and away from the roll surface to move both the main brush and the sweeper brush between retracted and operative positions.

12. (previously amended) An apparatus for casting metal strip, comprising a casting roll metal delivery system to deliver molten metal onto the surface of the casting roll and roll cleaning brush apparatus to clean the casting roll surface, the brushing apparatus comprising a main brushing device extending across the roll capable of tangentially engaging the peripheral longitudinal roll surface and a second sweeper brushing device extending across the roll to engage the roll in advance of the main brushing device, the sweeper brushing device comprises an elongate rotatably driven barrel brush extending across the roll surface of the casting roll and mounted on a mounting frame capable of engaging the casting roll in advance of the position of engagement of the main brushing device with the casting roll independent of the engagement of the main brushing device with the casting roll, the sweeper brush being driven to rotate in a direction opposite to the surface movement of the casting roll, the main brushing device is mounted to rotate about its longitudinal axis and capable of being rotatably driven in engagement with the casting roll at least during production of a casting run, a main brush actuator mounted on a mounting frame and capable of moving the main brush into engagement with the casting roll during production of the casting run, and a sweeper brush actuator on the mounting frame to separately move the sweeper brush toward the casting roll at the start and end of the casting run and away from the casting roll during the production part of the casting run.

13. (original) An apparatus as claimed in claim 12, wherein the main brush

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actuator and sweeper brush actuators comprise fluid actuable cylinder devices.

14. (previously amended) An apparatus as claimed in claim 12, further comprising an elongate scraper extending along the barrel brush and engaging the barrel brush so as to scrape swept material from the barrel brush.

15. (previously amended) An apparatus as claimed in claim 14, wherein the scraper is fixed to the sweeper brush mounting frame.

16. (original) An apparatus as claimed in claim 12, wherein the sweeper brush comprises a central brush body and a plurality of bristles projecting radially outwardly from the central body and forming collectively a substitute cylindrical shape.

17. (original) An apparatus as claimed in claim 16, wherein the bristles are formed of steel wire.

18. (original) An apparatus as claimed in claim 16, wherein the scraper comprises an elongate scraper blade projecting into the bristle canopy of the barrel brush.

19. (original) An apparatus as claimed in claim 18, wherein the scraper blade has a sharp leading edge.